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Omkar K. Suryadevara

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. 10/813,407 **Application Number** RANSMITTAL March 29, 2004 **Filing Date** First Inventor Jiping Li **FORM** MAR 2 5 2005 Confirmation No. 5642 2811 **Group Art Unit** all correspondence after initial filing) **Examiner Name** Unknown Total Number Of Pages In This Submission **BOX016 US** Attorney Docket No. **ENCLOSURES** (check all that apply) Fee Transmittal Form Assignment Papers After Allowance Communication to (for an Application) (1 page in duplicate) Group Fee Attached -- Credit Appeal Communication to Board of Drawing(s) Card Payment Form (1 pg) Appeals and Interferences Appeal Communication to Group Amendment / Reply Licensing-related Papers (Appeal Notice, Brief, Reply Brief) After Final Petition **Proprietary Information** Petition to Convert to a Affidavits/declarations Status Letter **Provisional Application** Power of Attorney, Revocation of Other Enclosure(s) (please identify Previous Powers; And Statement **Extension of Time Request** below): Under 37 CFR 3.73(b) Terminal Disclaimer RETURN RECEIPT POSTCARD PTO Form 1449 (5 pages) Express Abandonment Request Request for Refund Copies of 50 cited references Information Disclosure Statement (2 CD, Number of CD(s)_ pages) Certified Copy of Priority Document(s) Remarks This is a Response to Missing Parts/ Incomplete Application under 37 CFR Please charge Deposit Account 50-2263 for any underpaid fee. 1.52 or 1.53 Copy of Notice To File Missing Parts (2 pages) SIGNATURE OF APPLICANT, ATTORNEY OR AGENT Firm Omkar K. Suryadevara (Reg. No. 36,320) Silicon Valley Patent Group LLP Individual Name 2350 Mission College Boulevard, Suite 360 Santa Clara, California 95054 Signature Date CERTIFICATE OF MAILING BY "FIRST CLASS" I hereby certify that this paper or fee is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the below date.

March 23, 2005

Date



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventors: Jiping Li; Peter G. Borden; Edgar B. Genio

Assignee: Applied Materials, Inc.

Title: High Throughput Measurement Of Via Defects In Interconnects

Serial No.: 10/813,407 Filing Date: March 29, 2004

Examiner: Unknown Group Art Unit: 2811

Docket No.: BOX016 US Confirmation No: 5642

Santa Clara, California March 23, 2005

MAIL STOP AMENDMENT COMMISSIONER FOR PATENTS P.O. BOX 1450 ALEXANDRIA, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §1.97(b)

Dear Sir:

Pursuant to 37 C.F.R. § 1.56, §1.97 and §1.98, the Applicants submit for consideration in the above-identified patent application the documents listed on the accompanying Form PTO-1449. Copies of references numbered <u>47-96</u> are submitted herewith. The Examiner is requested to make these documents of record. The remaining references are not attached hereto, because these references are issued patents or publications which are readily available in the U.S. Patent and Trademark Office.

In addition, Applicants submit for the Examiner's consideration, the prosecution histories of ten co-owned applications/patents, which are identified in the attached PTO-1449 as items 97-106. The Applicants presume that the Examiner has access to and will review the cited applications/patents and the files thereof for any office actions, amendments or other materials that may be relevant to the patentability of the claims of the present application.

Citation of these prosecution histories (including the arguments against patentability advanced by Examiners in their respective Office Actions and the Applicants' arguments in

SILICON VALLEY PATENT GROUP LLP

2350 Mission College Blvd. Suite 360 Santa Clara, CA 95054 (408) 982-8200 FAX (408) 982-8210 the corresponding Amendments) is in accordance with the recent case DAYCO PRODUCTS, INC. v. TOTAL CONTAINMENT, INC., 02-1497, decided May 23, 2003 by the Court of Appeals for the Federal Circuit. The Examiner is presumed to be knowledgeable about the current case law, including the above-mentioned Dayco case. However, if the Examiner needs a copy of the Dayco case, please call the undersigned.

For any of the following U.S. patent application(s) cited in the attached PTO-1449 that are currently pending, the Applicants further presume that the Examiner will consider any **future** office actions, amendments or other materials in the file thereof that may be relevant to the patentability of the claims herein. If the Applicants' understanding in this regard is not correct, please notify the undersigned so that copies of any such documents can be submitted to the Examiner.

This Information Disclosure Statement is submitted pursuant to 37 CFR §1.97(b) as it is within three months of the filing date of a national application other than a continued prosecution application and/or before the mailing of a first Office Action on the merits. Accordingly, no fee is required.

Applicants would appreciate the Examiner initialing and returning the Form PTO-1449, indicating that the information has been considered and made of record herein.

The information contained in this Information Disclosure Statement is to the best of my knowledge and is not to be construed as a representation that: (i) a complete search has been made; (ii) additional information material to the examination of this application does not exist; (iii) the information, protocols, results and the like reported by third parties are accurate or enabling; or (iv) the above information constitutes prior art to the subject invention.

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Attorney for Applicant(s)

Date of Signature

Respectfully submitted,

Omkar K. Suryadevara Attorney for Applicant(s)

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10/813,407 Application No.: W. Department of Commerce, Patent and Trademark Office Filing Date: March 29, 2004 First Named Inventor: Jiping Li MAR 2 5 2005 Group Art Unit: 2811 **Examiner Name:** INFORMATION DISCLOSURE STATEMENT BY APPLICANT Unknown Confirmation No.: 5642 (Use several sheets if necessary) Attorney Docket No.: BOX016 US

			U.S. Pa	tent Documents			
*Examiner Intials		Document Number	Date	Name	Class	Subclass	Filing Date if Appropriate
	1.	6,489,801	12/3/02	Borden et al.	324	766	
	2.	6,812,047	11/2/04	Borden et al.	438	16	
	3.	5,966,019	10/12/99	Borden	324	752	
· · · · · · · · · · · · · · · · · · ·	4.	5,377,006	12/27/94	Nakata	356	349	
·	5.	6,323,951	11/27/01	Borden et al.	356	502	
	6.	6,426,644	7/30/02	Borden et al.	324	765	
	7.	5,042,951	8/27/91	Gold et al.	356	369	
	8.	5,159,412	10/27/92	Willenborg et al.	356	445	
	9.	5,181,080	1/19/93	Fanton et al.	356	381	
	10.	5,228,776	7/20/93	Smith et al.	374	5	
	11.	4,255,971	3/17/81	Rosencwaig	73	606	
	12.	4,579,463	4/1/86	Rosencwaig et al.	374	57	
	13.	4,632,561	12/30/86	Rosencwaig et al.	356	432	
	14.	4,636,088	1/13/87	Rosencwaig et al.	374	5	
	15.	4,750,822	6/14/88	Rosencwaig et al.	324	445	
	16.	6,049,220	4/11/00	Borden et al.	324	765	
	17.	6,483,594	11/19/02	Borden et al.	356	502	
	18.	6,154,280	11/2/00	Borden	356	376	
	19.	6,054,868	4/25/00	Borden et al.	324	752	
	20.	5,883,518	3/16/99	Borden	324	752	
V . HV.	21.	5,877,860	3/2/99	Borden	356	376	
	22.	5,978,074	11/2/99	Opsal et al.	356	72	
	23.	6,268,916	7/31/01	Lee et al.	356	432	
	24.	5,574,562	11/12/96	Fishman et al.	356	432	
	25.	6,169,601	1/2/01	Eremin et al.	356	240	

Examiner:

Date Considered:

^{*} Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with your communication with applicant.

LLC Deserting to 6		1.T11000	Application No.:	10/813	,407		
U.S. Department of Commerce, Patent and Trademark Office			Filing Date:	March	March 29, 2004		
	First Named Inventor		Jiping Li		· · · · · · -		
	Group Art Unit:			<u>-</u>			
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26.	3,803,413	4/9/74	Vanzetti et al.	250	338		
27.	2002/0126732A1	9/12/02	Shakouri et al.	374	130		
28.	6,327,035	12/4/01	Li et al.	356	432	 	
29.	6,281,027	9/28/01	Wei et al.	438	14		
30.	4,950,990	8/21/90	Moulder	324	224		
31.	4,521,118	06/00/85	Rosencwaig	374	5		
32.	5,074 669	12/1/91	Opsal	356	447	<u> </u>	
33.	3,909,602	9/30/75	Micka	716	4		
34.	5,790,251	8/4/98	Hagiwara	356	351		
35.	4,634,290	1/6/87	Rosencwaig	374	5		
36.	4,522,510	6/11/85	Rosencwaig	374	7		
37.	4,455,741	6/26/84	Kolodner	29	574		
38.	4,466,748	8/21/84	Needham	374	129		
39.	4,795,260	1/3/89	Schuur et al.	356	400		
40.	6,559,942	5/6/03	Sui et al.	356	369		
41.	6,528,333	3/4/03	Jun et al.	438	16		
42.	3,462,602	8/16/67	Apple	250	83		
43.	5,149,978	9/22/92	Opsal et al.	250	234		
44.	6,400,454	6/4/02	Noguchi et al.	356	237		
45.	4,679,946	7/14/87	Rosencwaig et al.	374	5		
46.	6,694,284 B1	2/17/04	Nikoonahad et al.	702	155		
		Foreign Pate	ent Documents				
		_				Tran	slation
	Document	Date	Country	Class	Subclass	Yes	No
47.	0 718 595	20.12.95	EP	G01B	6-Nov		1
48.	2000 009443A	Jan-00	JP	G01B			
49.	405006929A	Jan-93	JP	H01L	21/66		
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* Examiner: Initial if reference is considered, whether or not citation	on is in conformance with MPEP 609; Draw line through citation if		
not in conformance and not considered. Include copy of this form with your communication with applicant.			

U.S. Department of Commerce, Patent and Trademark Office			Application No.:	10/813	10/813,407		
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			First Named Inventor:	Jiping I	Jiping Li		
			Group Art Unit:	2811	2811		
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	(Use s	several sheets if necessar	y)	Confirmation No.:	5642	5642	
				Attorney Docket No.:	BOX01	BOX016 US	
<u> </u>					<u></u>		
	50.	ISR PCT/ US99/12999	09.06.1999	wo	G01L	21/17	
	51.	ISR PCT/US03/06239	02.28.2003	wo	G01L	21/55	
	52.	ISR PCT/US01/07475	07.03.2001	wo		_	
	53.	ISR PCT/US03/06379	02.28.2003	wo	G01N	21/88	
			cluding Author, Ti	tle, Date, Pertinent Pages	, Etc.)	·	_ · ·
	54.	Paquin, "Properties of pp. 35.3-35.7	Metals", Handbook	of Optics, Vol. II, McGr	aw-Hill, Inc	. (month unavai	lable), 1995,
	55.	Rosencwaig et al. "Detection of Thermal Waves Through Optical Reflectance", Appl Phys. Lett. 46, June 1985, pp1013-1015					
	56.	Rosencwaig, "Thermal-Wave Imaging", SCIENCE, Volume 218, No. 4569, Oct. 1982, pp.223-228					
	57.	Opsal et al. "Thermal-Wave Detection and Thin-Film Thickness Measurements with Laser Beam Deflection", Applied Optics, Vol. 22, No. 20, Oct. 1983, pp. 3169-3176					
	58.	Rosencwaig, "Thermal Wave Characterization and Inspection of Semiconductor Materials and Devices", Chapter 5 (pp. 97-135) of Photoacoustic and Thermal Wave Phenomena in Semiconductors, North Holland (month unavailable) 1987					
	59.	J. Opsal, "High Resolution Thermal Wave Measurements and Imaging of Defects and Damage in Electronic Materials" Photoacoustic and Photothermal Phenomena II, Springer Series in Optical Sciences, Vol. 62, Springer Verlag Berlin, Heidelberg, (month unavailable) 1990.					
	60.	J. Kolzer et al "Thermal Imaging and Measurement Techniques for Electronic Materials and Devices" Microelectronic Engineering, vol. 31, 1996 (month unknown) pages 251-270					
	61.	C. Martinsons et al. "Recent progress in the measurement of thermal properties of hard coatings" Thin Solid Films, vol. 317, April 1998, 455-457.					
	62.						
	63.	Yaozhi Hu and Sing Pin Tay, "Spectroscopic ellipsometry investigation of nickel silicide formation by rapid thermal process", J. Vac. Sci. Technology, American Vacuum Soc. May/Jun 1998, pages 1820-1824					
	64.	Bristow, Thomas C. and Dag Lindquist, "Surface Measurements With A Non-Contact Nomarski-Profiling Instrument", Interferometric Metrology, SPIE vol. 816, August 1987, pages 106-110					
	65.	Charles Kittel, "Introduction to Solid State Physics", Fourth Edition, John Wiley & Sons, published prior to March 1, 2002, pages 262-264					
	66.	Rolf E. Hummel, "Electronic Properties of Materials, An Introduction For Engineers", published prior to March 1, 2002, pages 137-145					
	67.			n of Heat In Solids", Seco	ond Edition,	published prior	to March 1,
	68.	A. Rosencwaig, "Thermal Wave Measurement of Thin-Film Thickness", 1986 American Chemical Society, pp.182-191					
Examiner:				Date Considered:		 	
				n is in conformance with			gh citation if
not in conformance and not considered. Include copy of this form with your communication with applicant.							

U.S. Department of Commerce, Patent and Trademark Office	Application No.:	10/813,407
	Filing Date:	March 29, 2004
	First Named Inventor:	Jiping Li
	Group Art Unit:	2811
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Examiner Name:	Unknown
(Use several sheets if necessary)	Confirmation No.:	5642
	Attorney Docket No.:	BOX016 US

69.	A. Rosencwaig et al., "Thin-Film Thickness Measurements with Thermal Waves", Journal De Physique, October 1983, pp. C6-483 - C6-489
70.	S. Ameri et al., "Photo-Displacement Imaging", March 30, 1981, pp. 337-338
71.	L. Chen et al., "Thermal Wave Studies of Thin Metal Films Using the Meta-Probe-A New Generation Photothermal System" 25th Review of Progress in QNDE, Snowbird, UT 19-24 July, 1998, pp 1-12
72.	P. Alpern and S. Wurm, "Modulated Optical Reflectance Measurements on Bulk Metals and Thin Metallic Layers", J. Appl. Phys. 66(4), 15 August 1989, pp 1676-1679
73.	J. Opsal, "The Application of Thermal Wave Technology to Thickness and Grain Size Monitoring of Aluminum Films", SPIE Vol. 1596 Metalization Performance and Reliability Issues for VLSI and ULSI (1991), pp 120-131
74.	A. Rosenwaig, "Process Control In IC Manufacturing With Thermal Waves", Review of Progress in Quantitative Nondestructive Evaluation, Vol.9, 1990, pp 2031-2037
75.	K. Farnaam, "Measurement of Aluminum Alloy Grain Size on Product Wafers and its Correlation to Device Reliability", 1990 WLR Final Report, pp 97-106
76.	B.C. Forget et al., "High Resolution AC Temperature Field Imaging", Electronic Letters 25th September 1997, Vol. 33 No. 20, pp 1688-1689
77.	C. Paddock et al., "Transient Thermoreflectance from Metal Films", May 1986 Vol. 11, No. 5 Optical Letters, pp 273-275
78.	C. Paddock et al., "Transient Thermoreflectance from Metal Films", J. Appl. Phys. 60(1), 1 July 1986, pp 285-290
79.	Per-Eric Nordail et al. "Photothermal Radiometry", Physica Scripts, Vol. 20, 659-662, 1979
80.	A. Rosenwaig, "Thermal Wave Monitoring and Imaging of Electronic Materials and Devices", pp 73-109
81.	A. Rosenwaig, "Applications of Thermal-Wave Physics to Microelectronics", VLSI Electronics, Microstructure Science Vol. 9, 1995, pp 227-288
82.	W. Lee Smith et al., "Voids, Notches and Microscracks in A1 Metallization Detected by Nondestructive Thermal Wave Imaging", June 23m 1989, pp. 211-221
83.	W. Lee Smith et al., "Imaging of Subsurface Defects in ULSI Metalization (AI Voids SI Preciptates, Silicide Instability) and SI Substrates (D Defects), Technical Proceedings Simicon/Japan 1992, Nippon Convention Center, Japan pp 238-246
84.	W. Lee Smith, "Nondestructive Thermal Wave Imaging of Voids & Microcracks in Aluminum Metallization", 1989 WLR Final Report, pp 55-68
85.	W. Lee Smith, "Direct Measurement of Stress-Induced Void Growth by Thermal Wave Modulated Optical Reflectance Imaging", 1991 IEEE/IRPS, pp 200-208
86.	W. Lee Smith, "Evaluating Voids and Microcracks in A1 Metalization", Semiconductor International, January 1990, pp 232 -237
87.	C. G. Welles et al., "High-Resolution Thermal Wave Imaging of Surface and Subsurface Defects in IC Metal Lines", Materials Research Society, SF Marriott, April 27-May 1, 1992, pp 1187-1191

Examiner:	Date Considered:
* Examiner: Initial if reference is considered, whether or not citation	on is in conformance with MPEP 609; Draw line through citation if
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	Filing Date:	March 29, 2004
	First Named Inventor:	Jiping Li
	Group Art Unit:	2811
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Examiner Name:	Unknown
(Use several sheets if necessary)	Confirmation No.:	5642
	Attorney Docket No.:	BOX016 US

J. A. Batista et al., "Biased MOS-FET and Polycrystalline Silicon Tracks Investigated by Photothermal		
Reflectance Microscopy", pp 468-469		
L. Chen et al., "Meta-Probe: A New Generation Photothermal System For Thin Metal Films Characterization" (believed to be prior to March 1, 2002)		
L. Chen et al., "Thermal Wave Studies of Thin Metal Films and Structures", (believed to be prior to March 1, 2002)		
9th International Conference on Photoacoustic and Photothermal Phenomena Conference Digest, June 27-30, 1996 Nanjing, P.R. China, pp 81		
R. S. Sharpe, "Research Techniques in Nondestructive Testing Vol. VII, Academic Press 1984, pp 158-365		
R. L. Thomas et al., "Thermal Wave Imaging For Nondestructive Evaluation" 1982 Ultrasonic Symposium, pp 586-590		
G. Slade Cargill III, "Electron-Acoustic Microscopy", Physics Today, October 1981, pp 27-32		
A. Rosencwaig, "Thermal Wave Microscopy", Solid State Technology, March 1982, pp 91-97		
Eric A. Ash, "Acoustical Imaging" Volume 12, Plenium Press, July 19-22, 1982, pp 61-65		
US Appl. No. 09/095,805 entitled "Apparatus and Method For Measuring A Property of a Layer in a Multilayered Structure"		
US Appl. No. 10/722,724 entitled "Apparatus and Method For Measuring A Property of a Layer in a Multilayered Structure"		
US Appl. No. 10/090,316 entitled "Apparatus and Method For Measuring A Property Of A Layer In A Multilayered Structure"		
US Appl. No. 09/521,232 entitled "Evaluating A Property Of A Multilayered Structure"		
US Appl. No. 10/977,380 entitled "Evaluating A Property Of A Multilayered Structure"		
US Appl. No. 09/788,273 entitled "Evaluating Sidewall Coverage In A Semiconductor Wafer"		
US Appl. No. 10/090,262 entitled "Evaluating A Multilayered Structure For Voids"		
US Appl. No. 10/984,463 entitled "Evaluating A Multilayered Structure For Voids"		
US Appl. No. 10/090,287 entitled "Identifying Defects In A Conductive Structure Of A Wafer, Based On Heat Transfer Therethrough"		
US Appl. No. 10/979,397 entitled "Evaluation Of Openings In A Dielectric Layer"		

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